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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,391	01/28/2004	Steven K. Sullivan	7164-US	4752
7590 05/18/2005				
TEKTRONIX, INC. Francis I. Gray M/S 50-LAW P. O. Box 500 Beaverton, OR 97077-0001			EXAMINER WACHSMAN, HAL D	
			ART UNIT 2857	PAPER NUMBER

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,391

Applicant(s)

SULLIVAN ET AL.

Examiner

Hal D. Wachsman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method cited in claims 1-12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Page 1, line 17, of the specification cites "...for detecting and possibly removing aliased information..." however the "*possibly* removing" here implies that the invention may or may not do what is being stated. Appropriate correction is required.

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3. Claims 1-19 are objected to under 37 C.F.R. 1.75(a) for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The preamble of claim 1 cites "A method, comprising:" but a method for what exactly is being referred to here ? This same type of problem also occurs in the preamble of claim 13. Claim 1, lines 4-5, cite "processing the respective streams of samples according to a first function to determine thereby respective spectral energy distributions" which does not particularly point out what type of function is being referred to and how that function determines the respective spectral energy distributions. In addition, it is not clear why this is being called a "*first* function" as there is nothing labeled as a "*second* function" in any of the claims that depend from claim 1. The last line of claim 1 cites "...including spectral energy common to each" however common to each what exactly is being referred to here ? Claim 2, line 2, cites "the sample rates" however the antecedent basis is "at least two sample rates". This same type of problem also occurs in claim 3, line 2, claim 12, lines 1-2. Claim 5, lines 1-2, cite "...respective spectral energy distributions processing step..." which it appears should be "said respective spectral energy distributions processing step...". The last 2 lines of claim 11 cite "...a spectrally non-common manner" however what exactly constitutes the "manner" here ? Claim 13, lines 4-5, cite "a processor for processing the respective streams of samples according to a first function to determine thereby respective spectral energy distributions" which does not particularly point out what type of function is being referred to and how that function determines the respective spectral energy distributions. . In addition, it is not clear why this is being called a "*first* function" as there is nothing

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labeled as a "second function" in any of the claims that depend from claim 13. Claim 13, line 6, cites "the spectral energy distributions" which it appears should be "the respective spectral energy distributions". The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-5, 9-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fonte (5,815,101) in view of Wilson et al. (5,323,337).

As per claim 1, Fonte (Abstract, col. 8 lines 1-5) discloses "acquiring a signal under test..at each of at least two sample rates to provide thereby respective streams of samples". Fonte (Abstract, figure 3, col. 2 lines 49-53, col. 5 lines 33-35) discloses "processing the respective streams of samples....to determine thereby respective spectral energy distributions" with the exception of explicitly disclosing that the spectral distributions are spectral energy distributions. In addition, Fonte (Abstract, figure 3, col. 5 lines 41-48, col. 6 lines 7-10) discloses "comparing the respective spectral energy distributions to determine a spectral region including spectral energy common to each" with the exception of explicitly disclosing that the spectral distributions are spectral energy distributions and that the aspect of the spectrum that is common to each is the spectral energy. However, with respect to the excepted features already noted above, Wilson et al. (Abstract, col. 3 lines 32-35, col. 4 lines 31-34, 40-42, col. 5 lines 4-7) teach these excepted features. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Wilson et al. to the invention of Fonte as specified above because Fonte (see figure 3) provides the amplitudes (which are magnitudes) of the various frequencies and Wilson et al. (col. 4 lines 31-34, 40-42) provides values indicative of the magnitude of a frequency component of a signal sample for determining the magnitudes of energy in the various frequency components.

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As per claim 2, Fonte (see at least abstract) discloses the feature of this claim.

As per claim 3, Fonte (Abstract, col. 5 lines 30-32, 58-61) discloses the feature of this claim.

As per claim 4, Fonte (Abstract, col. 3 lines 32-35, 60-63) discloses the feature of this claim with the exception of explicitly disclosing that the spectral distributions are spectral energy distributions and that the non-common spectral components are energy components. However, with respect to the excepted features noted above, Wilson et al. (Abstract, col. 3 lines 32-35; col. 4 lines 31-34, 40-42, col. 5 lines 4-7) teach these excepted features. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Wilson et al. to the invention of Fonte as specified above because Fonte (see figure 3) provides the amplitudes (which are magnitudes) of the various frequencies and Wilson et al. (col. 4 lines 31-34, 40-42) provides values indicative of the magnitude of a frequency component of a signal sample for determining the magnitudes of energy in the various frequency components.

As per claim 5, Fonte (Abstract, figure 6, col. 5 lines 28, 29, col. 6 lines 33-47) discloses the feature of this claim.

As per claim 9, Fonte (Abstract, figure 3, col. 3 lines 52-56, col. 5 lines 41-48, col. 6 lines 7-10) discloses the feature of this claim with the exception of explicitly disclosing that the spectral distributions are spectral energy distributions. However, with respect to the excepted feature noted above, Wilson et al. (Abstract, col. 3 lines 32-35,

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col. 4 lines 31-34, 40-42, col. 5 lines 4-7) teach this excepted feature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Wilson et al. to the invention of Fonte as specified above because Fonte (see figure 3) provides the amplitudes (which are magnitudes) of the various frequencies and Wilson et al. (col. 4 lines 31-34, 40-42) provides values indicative of the magnitude of a frequency component of a signal sample for determining the magnitudes of energy in the various frequency components.

As per claim 10, Fonte (col. 2 lines 49-53, col. 5 lines 33-35) discloses the function being a Fast Fourier transform function.

As per claim 11, Fonte (Abstract, figure 3, col. 3 lines 33-35, 58-61, col. 4 lines 11-13) discloses the feature of this claim with the exception of explicitly disclosing the energy aspect of the aliased signal spectrum. However, with respect to the excepted feature noted above, Wilson et al. (Abstract, col. 3 lines 32-35, col. 4 lines 31-34, 40-42, col. 5 lines 4-7) teach this excepted feature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Wilson et al. to the invention of Fonte as specified above because Fonte (see figure 3) provides the amplitudes (which are magnitudes) of the various frequencies and Wilson et al. (col. 4 lines 31-34, 40-42) provides values indicative of the magnitude of a frequency component of a signal sample for determining the magnitudes of energy in the various frequency components.

As per claim 13, Fonte (Abstract, col. 8 lines 1-5) discloses "an input channel for acquiring a signal under test...at a plurality of sample rates to provide

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thereby respective streams of samples". Fonte (Abstract, figure 3, col. 2 lines 49-53, col. 5 lines 33-35, 41-48, col. 6 lines 7-10) discloses " a processor for processing the respective streams of samples...and for comparing the spectral energy distributions...including spectral energy common to each of the respective spectral energy distributions" with the exception of explicitly disclosing that the spectral distributions are spectral energy distributions and that the aspect of the spectrum that is common to each of the distributions is the spectral energy. However, with respect to the excepted features already noted above, Wilson et al. (Abstract, col. 3 lines 32-35, col. 4 lines 31-34, 40-42, col. 5 lines 4-7) teach these excepted features. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Wilson et al. to the invention of Fonte as specified above because Fonte (see figure 3) provides the amplitudes (which are magnitudes) of the various frequencies and Wilson et al. (col. 4 lines 31-34, 40-42) provides values indicative of the magnitude of a frequency component of a signal sample for determining the magnitudes of energy in the various frequency components.

As per claim 14, Fonte (see at least abstract) discloses the feature of this claim.

As per claim 15, Fonte (Abstract, col. 5 lines 30-32, 58-61) discloses the feature of this claim.

6. Claims 6, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fonte (5,815,101) in view of Wilson et al. (5,323,337) as applied to claims 1 and 13 above, and further in view of Berchin (5,375,067).

As per claim 6, the spectral region of the respective spectral energy distributions having common spectral energy components have already been addressed in claim 1 above. With respect to a display device that can be used to present this spectral region, Berchin (Abstract, figure 1) teaches such a display device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Berchin to the inventions of Fonte and Wilson et al. as specified above because as taught by Berchin (col. 1 lines 14-20) many prior art data acquisition devices, such as digital storage oscilloscopes, *require that their acquisition parameters be adjusted*. Their acquisition parameters, including trigger level, voltage range, number of points (record length), **sampling rate**, and the pre-trigger amount, have optimal values for the equipment being used and the waveform or input signal being acquired.

As per claim 12, Berchin (Abstract, figure 1, col. 3 lines 51-53, col. 6 lines 12, 13, 43-46, col. 8 lines 45-53) teaches adapting the sampling rates in response to user interaction including a frequency band selection input and a record length selection input. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Berchin to the inventions of Fonte and Wilson et al. as specified above because as taught by Berchin (col. 1 lines 14-20) many prior art data acquisition devices, such as digital storage oscilloscopes, *require that their acquisition parameters be adjusted*. Their acquisition parameters, including trigger level, voltage range, **number of points (record length)**, **sampling rate**, and the pre-trigger

amount, have optimal values for the equipment being used and the waveform or input signal being acquired.

As per claim 16, the spectral region of the respective spectral energy distributions having common spectral energy components have already been addressed in claim 13 above. With respect to a display processor for generating an output signal for presentation on a display device that can be used to present an image of the spectral region, Berchin (Abstract, figure 1) teaches such a display device. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Berchin to the inventions of Fonte and Wilson et al. as specified above because as taught by Berchin (col. 1 lines 14-20) many prior art data acquisition devices, such as digital storage oscilloscopes, *require that their acquisition parameters be adjusted*. Their acquisition parameters, including trigger level, voltage range, number of points (record length), **sampling rate**, and the pre-trigger amount, have optimal values for the equipment being used and the waveform or input signal being acquired.

7. Claims 7, 8 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fonte (5,815,101) in view of Wilson et al. (5,323,337) and Berchin (5,375,067) as applied to claims 6 and 16 above, and further in view of Sullivan et al. (6,163,758).

As per claim 7, Sullivan et al. (col. 4 lines 31-38) teach that automatically discovered unusual or anomalous waveforms are highlighted with extra brightness or by the use of different color, thereby making it easier to the oscilloscope operator to notice

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them. The pixels of the unusual waveform can also be emphasized by giving them a high level of intensity (or corresponding color) and then holding them at that high level of intensity (or corresponding color) for a relatively long period of time. Based upon the above then, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Sullivan et al. to the inventions of Fonte, Wilson et al. and Berchin as specified above and present the common and non-common spectral energy components in different colors because it would make it easier to the oscilloscope operator to notice them.

As per claim 8, Sullivan et al. (col. 4 lines 31-38) teach that automatically discovered unusual or anomalous waveforms are highlighted with extra brightness or by the use of different color, thereby making it easier to the oscilloscope operator to notice them. The pixels of the unusual waveform can also be emphasized by giving them a high level of intensity (or corresponding color) and then holding them at that high level of intensity (or corresponding color) for a relatively long period of time. Based upon the above then, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Sullivan et al. to the inventions of Fonte, Wilson et al. and Berchin as specified above and present the common and non-common spectral energy components in different intensity levels because it would make it easier to the oscilloscope operator to notice them.

As per claim 17, Sullivan et al. (col. 4 lines 31-38) teach that automatically discovered unusual or anomalous waveforms are highlighted with extra brightness or by the use of different color, thereby making it easier to the oscilloscope operator to notice

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them. The pixels of the unusual waveform can also be emphasized by giving them a high level of intensity (or corresponding color) and then holding them at that high level of intensity (or corresponding color) for a relatively long period of time. Based upon the above then, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Sullivan et al. to the inventions of Fonte, Wilson et al. and Berchin as specified above and present the common and non-common spectral energy components in different colors because it would make it easier to the oscilloscope operator to notice them.

As per claim 18, Sullivan et al. (col. 4 lines 31-38) teach that automatically discovered unusual or anomalous waveforms are highlighted with extra brightness or by the use of different color, thereby making it easier to the oscilloscope operator to notice them. The pixels of the unusual waveform can also be emphasized by giving them a high level of intensity (or corresponding color) and then holding them at that high level of intensity (or corresponding color) for a relatively long period of time. Based upon the above then, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Sullivan et al. to the inventions of Fonte, Wilson et al. and Berchin as specified above and present the common and non-common spectral energy components in different intensity levels because it would make it easier to the oscilloscope operator to notice them.

As per claim 19, Sullivan et al. (col. 4 lines 31-38) teach that automatically discovered unusual or anomalous waveforms are highlighted with extra brightness or by the use of different color, thereby making it easier to the oscilloscope operator to notice

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them. The pixels of the unusual waveform can also be emphasized by giving them a high level of intensity (or corresponding color) and then holding them at that high level of intensity (or corresponding color) for a relatively long period of time. Based upon the above then, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Sullivan et al. to the inventions of Fonte, Wilson et al. and Berchin as specified above and have the spectral energy from each acquisition in a different color as well as common areas of spectral energy visible in yet another color, because it would make it easier to the oscilloscope operator to notice them.

8. The following references are cited as being art of general interest: Duncan, Jr. (6,026,418) which discloses a frequency measurement method, Elms (5,587,917) which discloses slow and high rate sampling of voltage and current, Burns (6,292,760) which discloses the leakage of energy level from a frequency component into other spectral bins, Bombard (6,760,674) which discloses an audio spectrum analyzer, Page (4,755,795) which discloses selecting a sampling rate based on bandwidth and Gauland et al. (6,571,185) which disclose an automatic setup function for a digital oscilloscope.

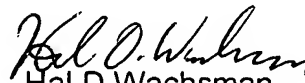
9. No claims are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal D. Wachsman whose telephone number is 571-272-2225. The examiner can normally be reached on Monday to Friday 7:00 A.M. to 4:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Hal D Wachsman
Primary Examiner
Art Unit 2857

HW
May 14, 2005